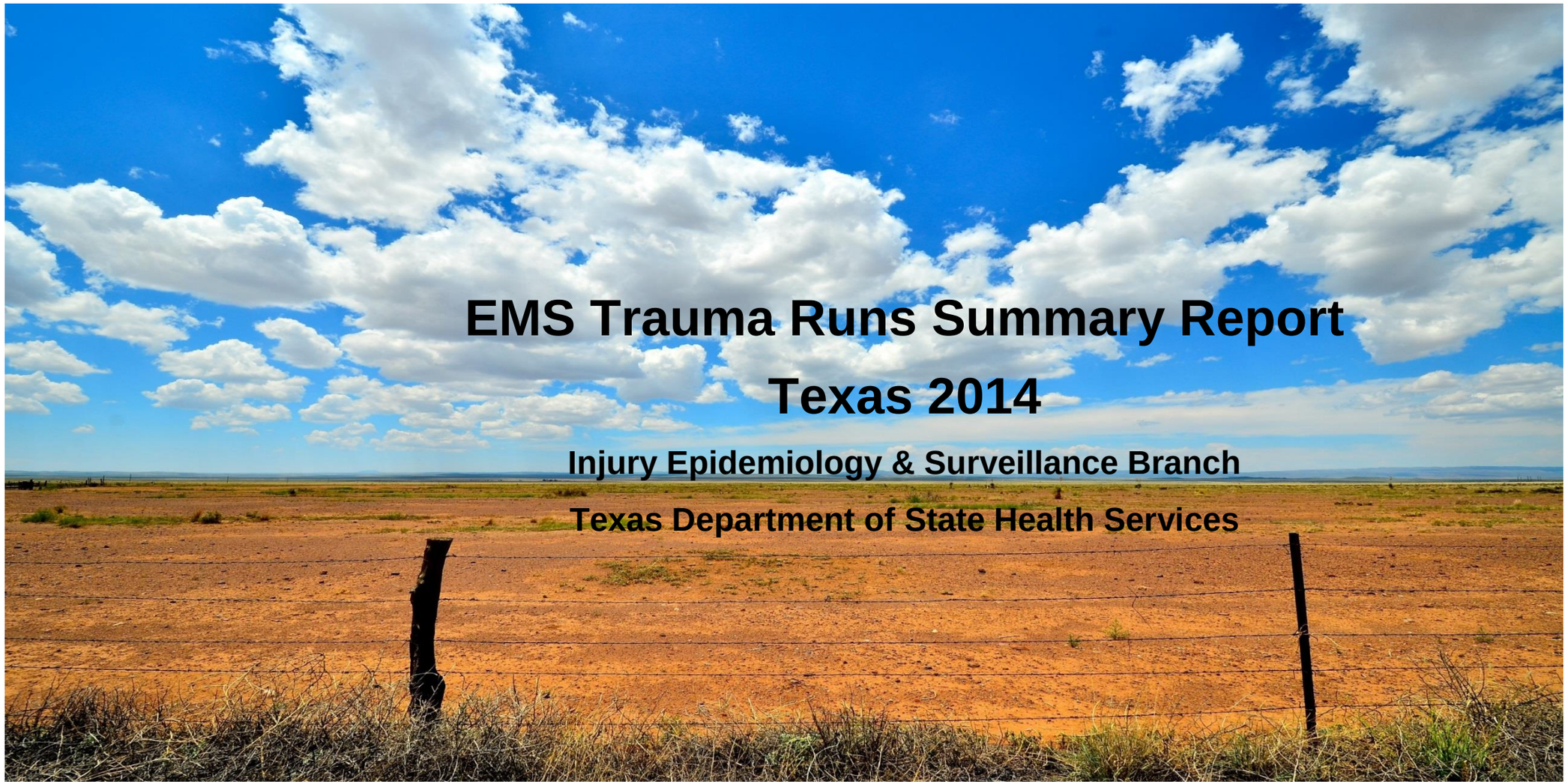

EMS Trauma Runs Summary Report

Texas 2014

Injury Epidemiology & Surveillance Branch

Texas Department of State Health Services

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TEXAS
Department of
State Health Services

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Foreword

Since the 1960's, emergency medical services (EMS) in the United States and Texas have experienced explosive development and growth. Early systems began with limited knowledge about what constituted the most efficient processes for the delivering ideal emergency care resources to the spectrum of situations encountered by contemporary EMS practitioners. Today's lifesaving EMS processes and procedures have improved survivability dramatically with Texas EMS being recognized as a national leader.

Yet, challenges and struggles to create and maintain dependable systems of emergency medical care for all Texans continue to exist. Although the Texas EMS and Trauma System is massive, vast distances and scarce resources pose important challenges to EMS provision, especially in rural and frontier communities. Texas is home to over 63,000 certified or licensed EMS personnel, operating around 800 organizations responding to almost 4 million dispatches annually. Aside from the challenges of geography and scarce operational resources, EMS providers and leadership also face the following challenges:

- Recruitment
- Retention
- Reimbursement
- Recognition and;
- Relationships

Addressing these issues is critical to maintaining a dependable emergency care system in Texas. It is imperative we develop data-driven solutions, utilizing patient care data provided by EMS personnel that has been linked to all aspects of the health care system. To that end, reports like this are valuable as they provide an important and valuable resource for policy makers and providers alike, and will serve as the foundation to developing flexible and long-lasting solutions.

By working together, we can each do our part to ensure a brighter future for the Texas EMS system. We are confident reports like this from the Texas EMS & Trauma Registries will benefit the patients Texas EMS personnel treat every day, helping ensure the right patient gets to the right place at the right time, via the most appropriate method.

Joseph Schmider
State EMS Director

Colin Crocker
State Trauma Director

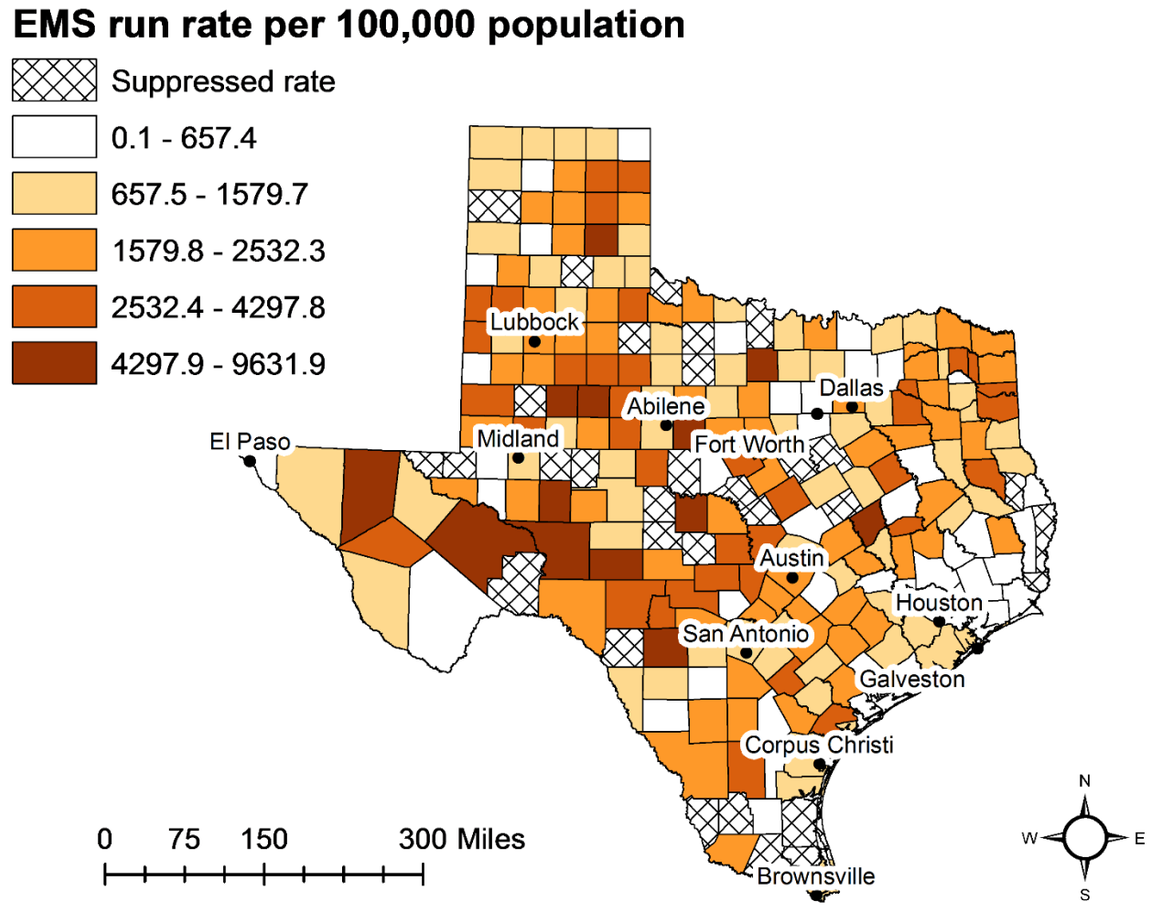
Introduction

The Injury Epidemiology and Surveillance Branch (IESB) is located in the Environmental Epidemiology and Disease Registries Section of the Division for Disease Control and Prevention Services at the Texas Department of State Health Services. IESB's aim is to improve the health of Texans by reducing morbidity and mortality resulting from injuries. IESB continually improves the surveillance of reportable injuries and events through the EMS & Trauma Registries (ETR) and shares knowledge of analytic findings through presentations and reports for the benefit of public health.

By law, all Emergency Medical Services (EMS) runs in Texas must be reported to ETR. There were 2,540,055 EMS runs reported to the ETR in 2014. EMS runs are made in response to requests for service: response to a 911 call, intercept, inter-facility transport, medical transport, mutual aid, public assistance, or standby.

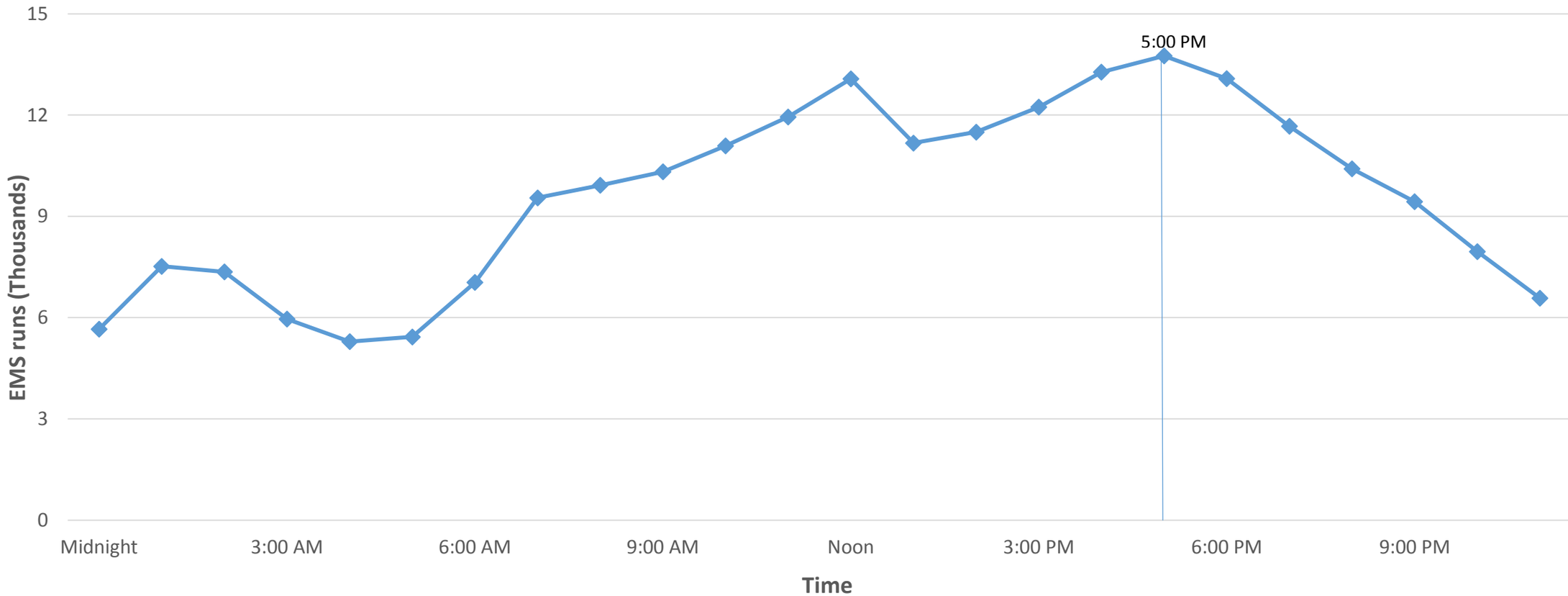
Geographical Location

Of all the EMS runs in 2014, 12.3% (n = 311,472/2,540,055) were related to trauma cases. Among the trauma runs 85% (n = 265,379/311,472) were 911 response. Ninety six percent (n = 299,014/311,472) of trauma runs were made by ground ambulance and only 1.5% (n = 4,784/311,472) were made by air medical services. As seen on the map, trauma runs occurred throughout Texas at different rates. The statewide trauma EMS run rate was 1,681.0 trauma runs per 100,000 population.



Incident Time

In 2014, the greatest number of trauma runs occurred in the 5:00 PM hour.
IESB EMS Data 2014

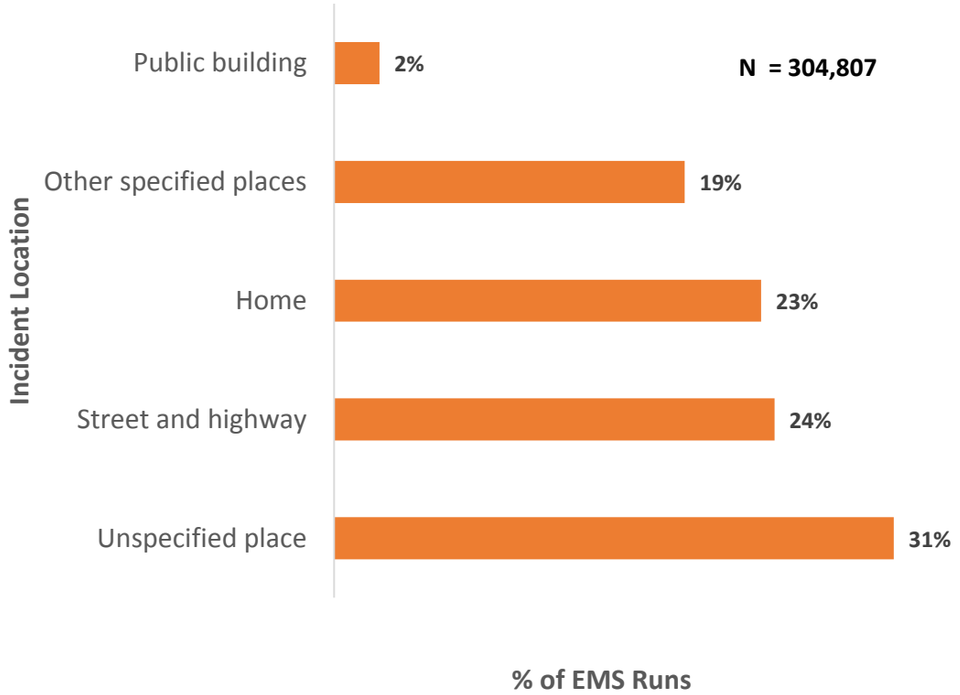


The occurrence of trauma EMS runs differs by the time of day. In 2014, the greatest number of trauma runs occurred between the 4:00 PM and 6:00 PM hours.

Incident Location

Trauma can happen in many different places. The top five locations of trauma incident reported were: unspecified place, street and highway, residential home, other specified places (e.g., place for recreation and sport, industrial place and premises, residential institution, farm, mine and quarry), and public building.

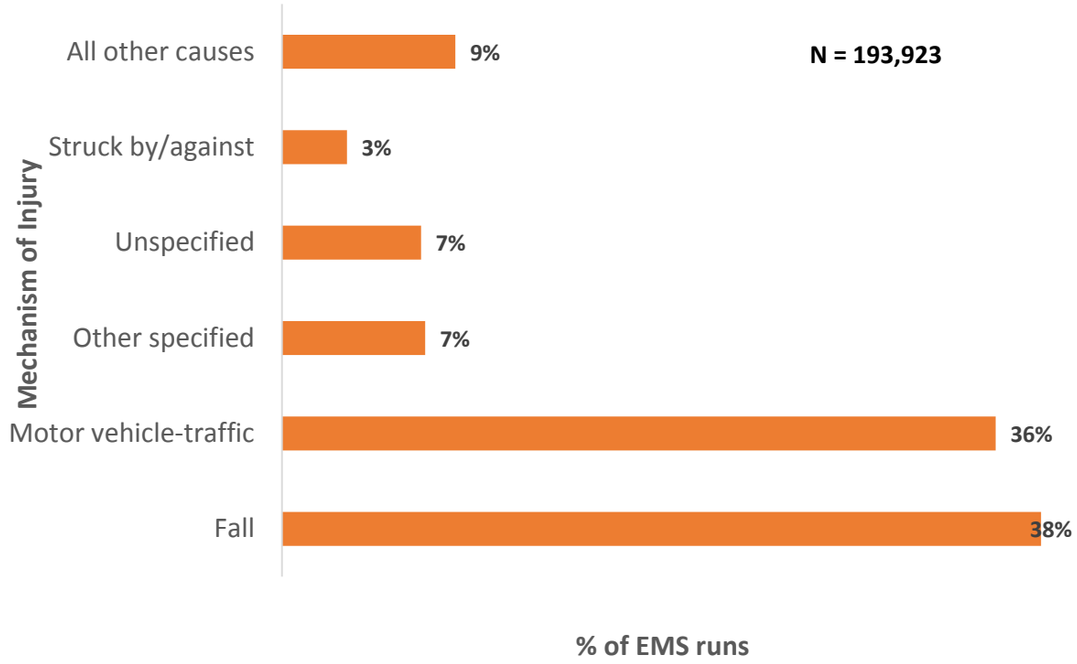
Street and highway was the second leading (24%) incident location for trauma injuries.
IESB EMS Data 2014



Mechanism of Injury

A mechanism of injury is how a person is injured (also known as external cause of injury): common mechanisms are motor vehicle crashes, falls, and firearms. Among trauma runs with known information about the mechanism of injury, fall was the leading cause of injury (38%, n = 73,808/193,923). Falls and motor vehicle traffic-related injuries accounted for three quarters (74%, n = 143,209/193,923) of trauma runs.

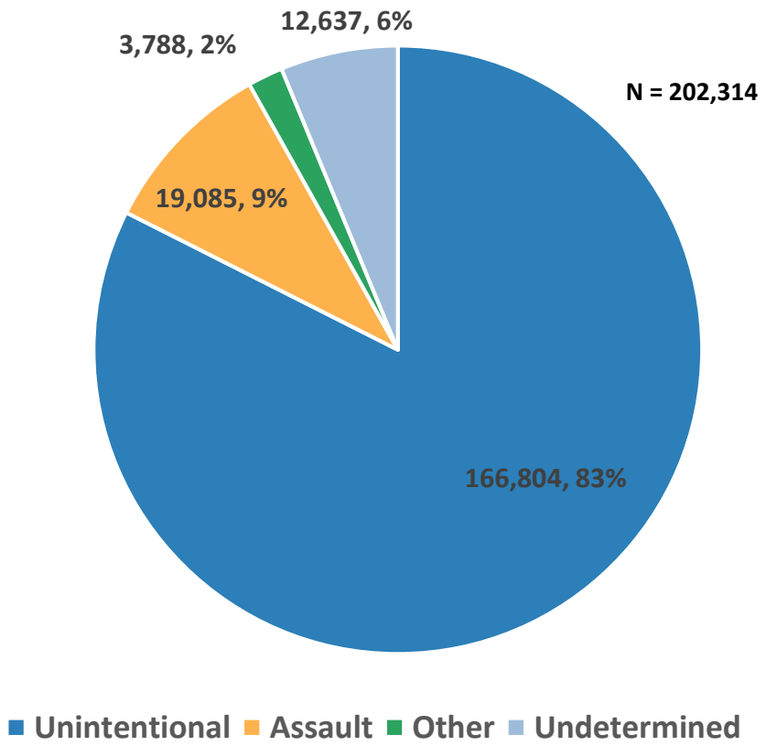
Fall and motor vehicle-traffic were the leading causes of trauma EMS runs.
IESB EMS Data 2014



Injury Intent

Most trauma runs (83%, n = 166,804/202,314) were for unintentional injuries. Other intents included assault-related injuries (9%) and self-inflicted injuries (2%).

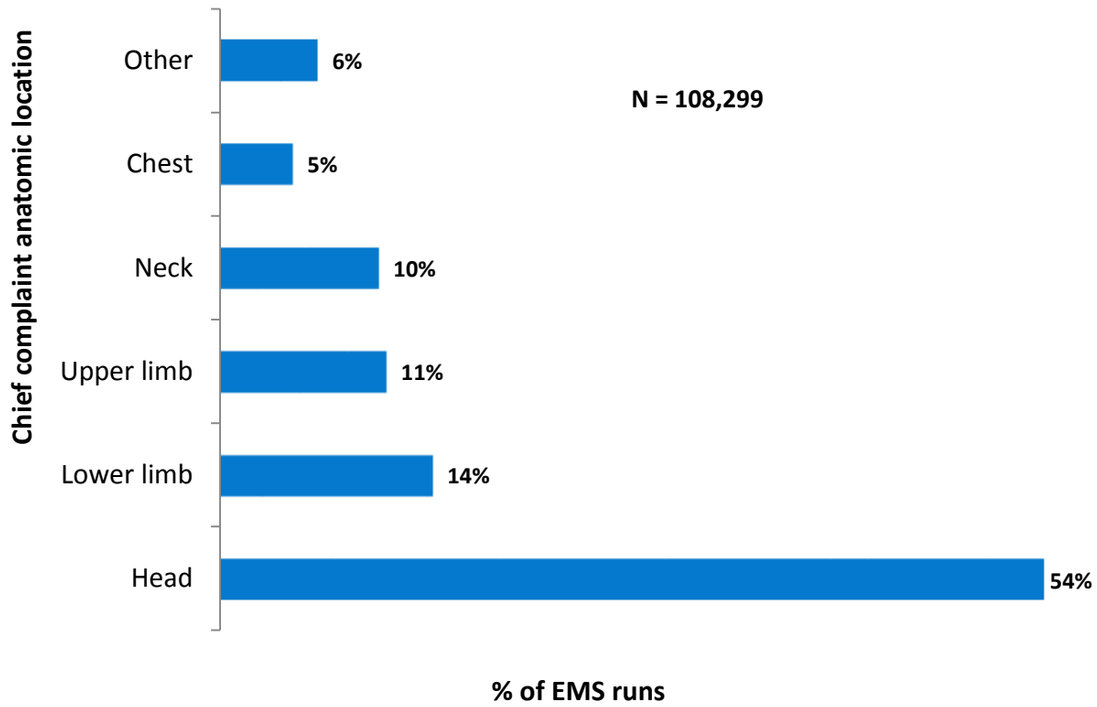
83% of trauma runs were for unintentional injuries and 9% were for assault-related injuries.
IESB EMS Data 2014



Chief Complaint Anatomic Location

A chief complaint is the main statement of the problem described by the patient or the medical information provider. The chief complaint anatomic location is the area of the body associated with the chief complaint. In 2014, the leading chief complaint location was the head (54%, n = 58,277/108,299). It was reported more often than all other body areas.

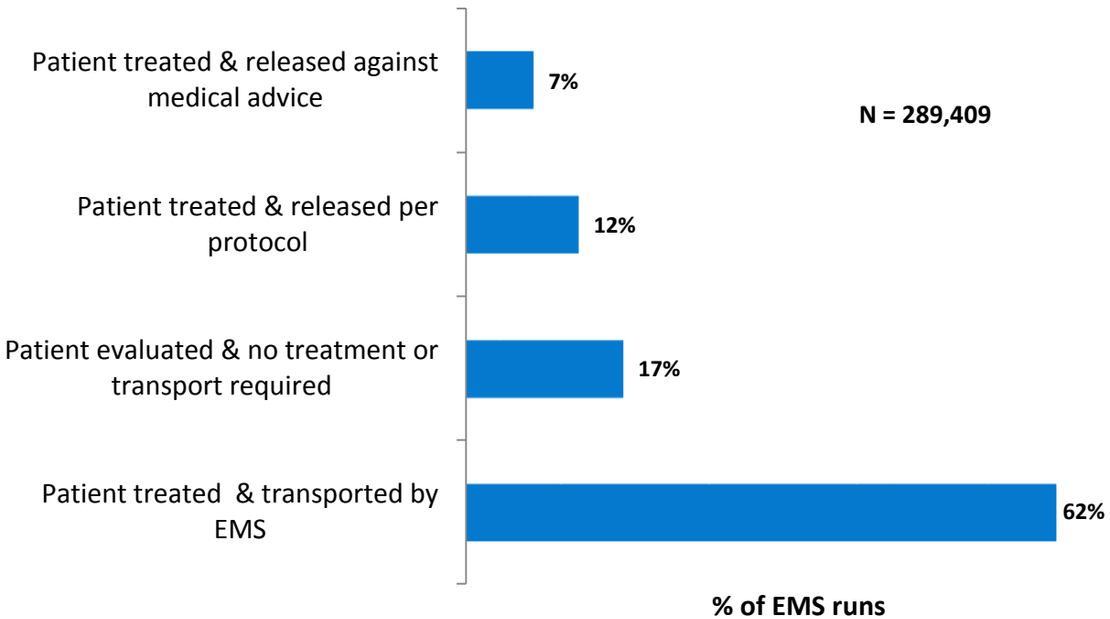
The leading chief complaint location was head (54%) among trauma runs.



Patient Disposition

Patient disposition describes the actions taken by EMS professionals regarding treatment and transportation of the patient. Among trauma runs the majority of patients (62%, n = 179,263/289,409) were treated by EMS professionals and transported.

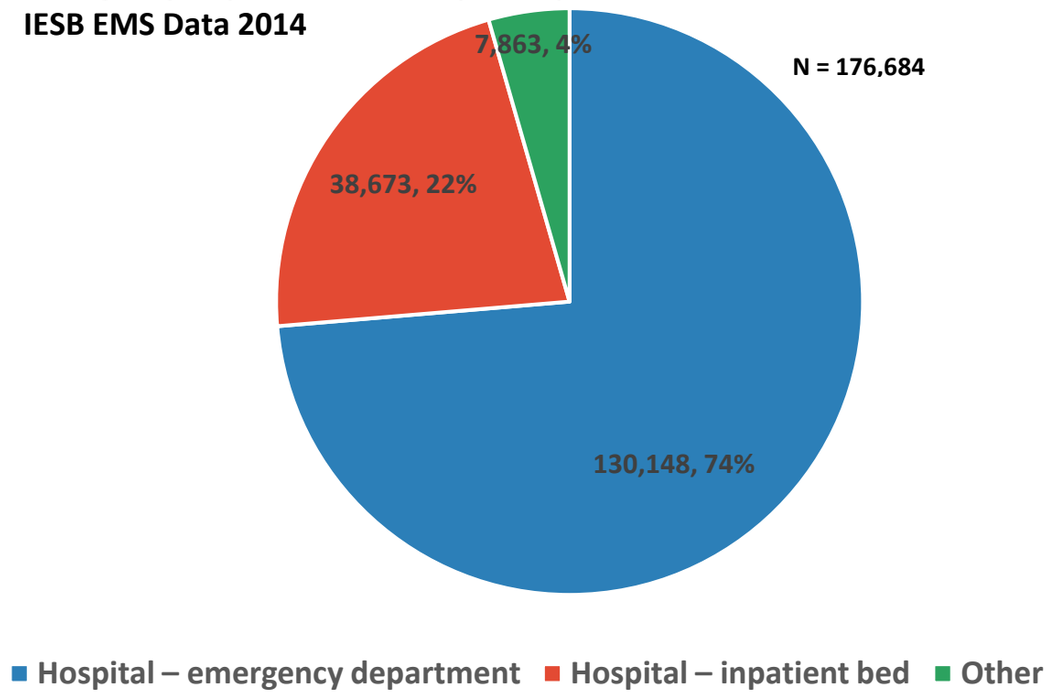
62% of trauma patients were treated and transported by the EMS.
IESB EMS Data 2014



Patient Destination

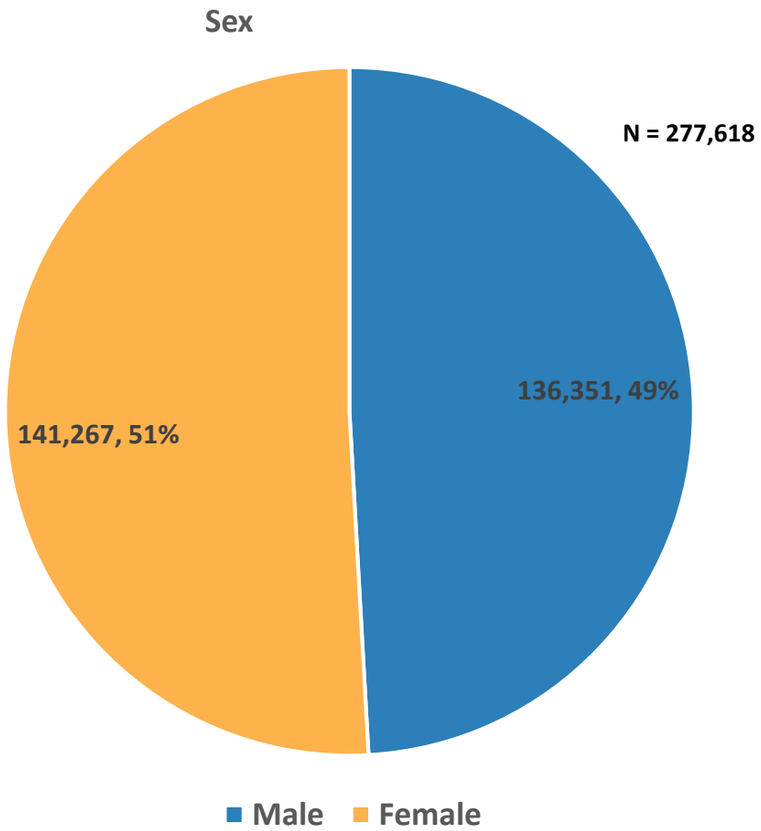
Patients can be transported to a variety of places, including: hospitals, emergency departments, medical offices, etc. In 2014, three quarters (74%, n = 130,148/176,684) of transported trauma run patients were taken to a hospital emergency department, and 22% (n = 38,673/176,684) were taken to hospital inpatient services.

96% of transported trauma EMS run patients were taken to a hospital Emergency Department or hospital inpatient services.
IESB EMS Data 2014



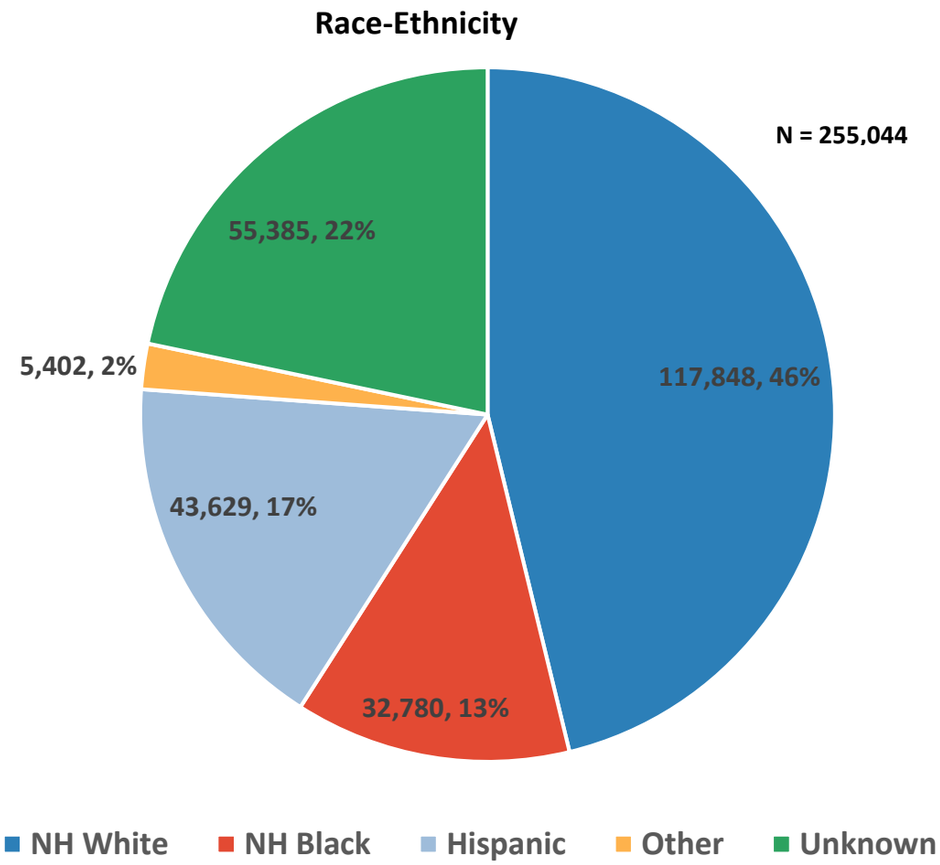
Sex

During 2014 in Texas, 89% (n = 277,618/311,472) of trauma EMS runs reported information about patient sex. Among trauma runs, 51% (n = 141,267/277,618) were among females and 49% (n = 136,351/277,618) were among males.



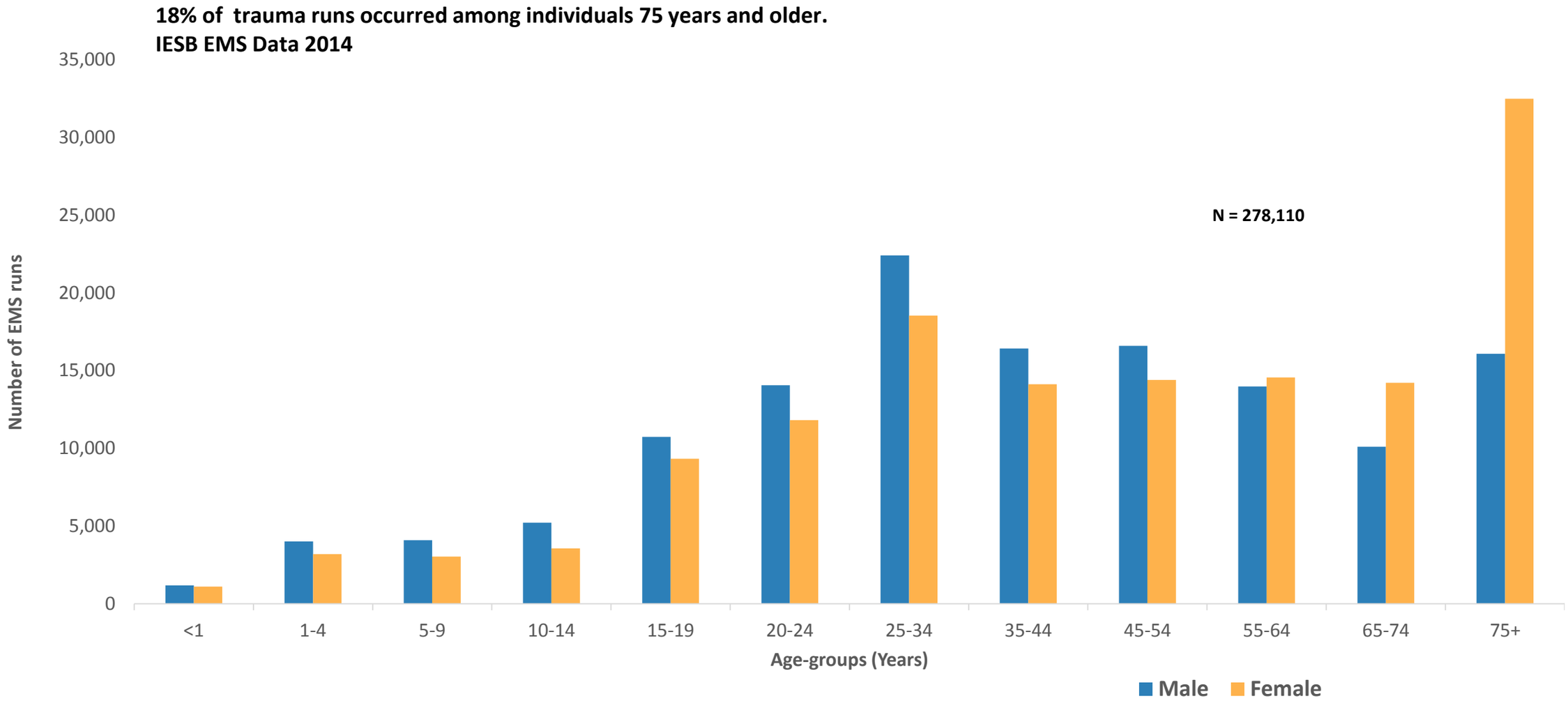
Race-Ethnicity

During 2014 in Texas, 82% (n = 255,044/311,472) of trauma EMS runs reported information about race-ethnicity. Of these, almost half (46%, n = 177,848/255,044) of runs occurred among non-Hispanic whites.

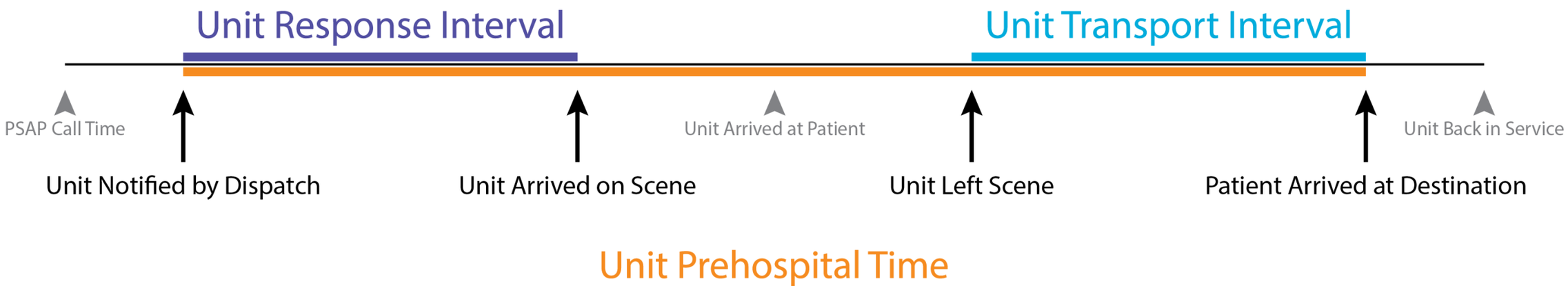


Age and Sex

During 2014 in Texas, 89% (n = 278,110/311,472) of trauma EMS runs had reported information about age. The greatest (18%, n = 48,548/278,110) number of trauma runs were seen amongst patients 75 years and older, followed by those 25 to 34 years old (15%, n = 40,936/278,110). The number of trauma runs was higher among males until the age of 54 years, after which there were more trauma runs among females.

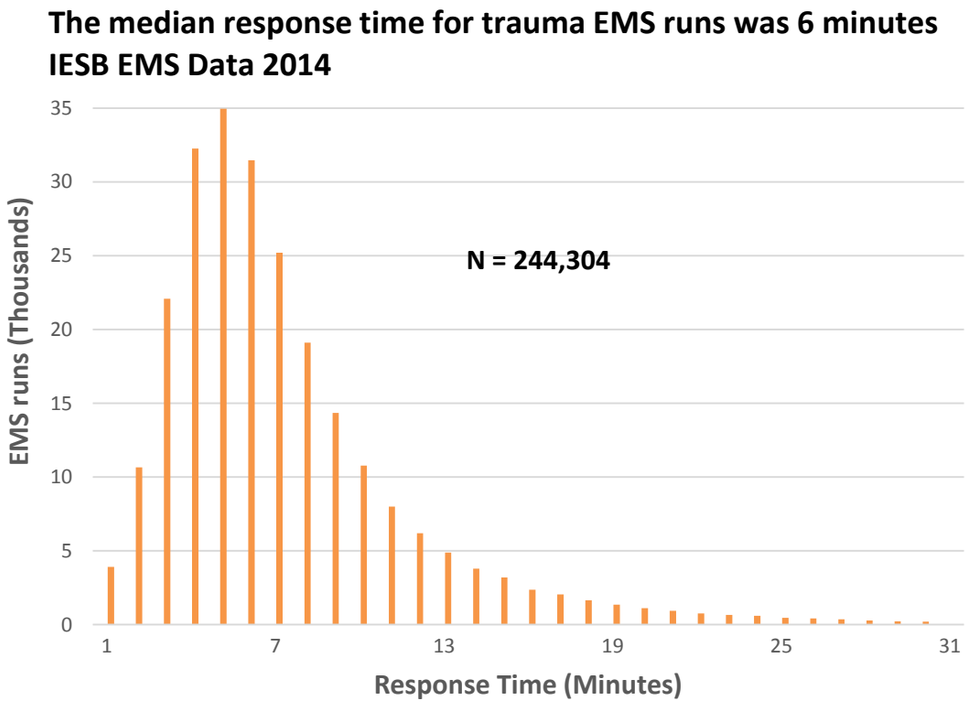


Sequence of events in an EMS run



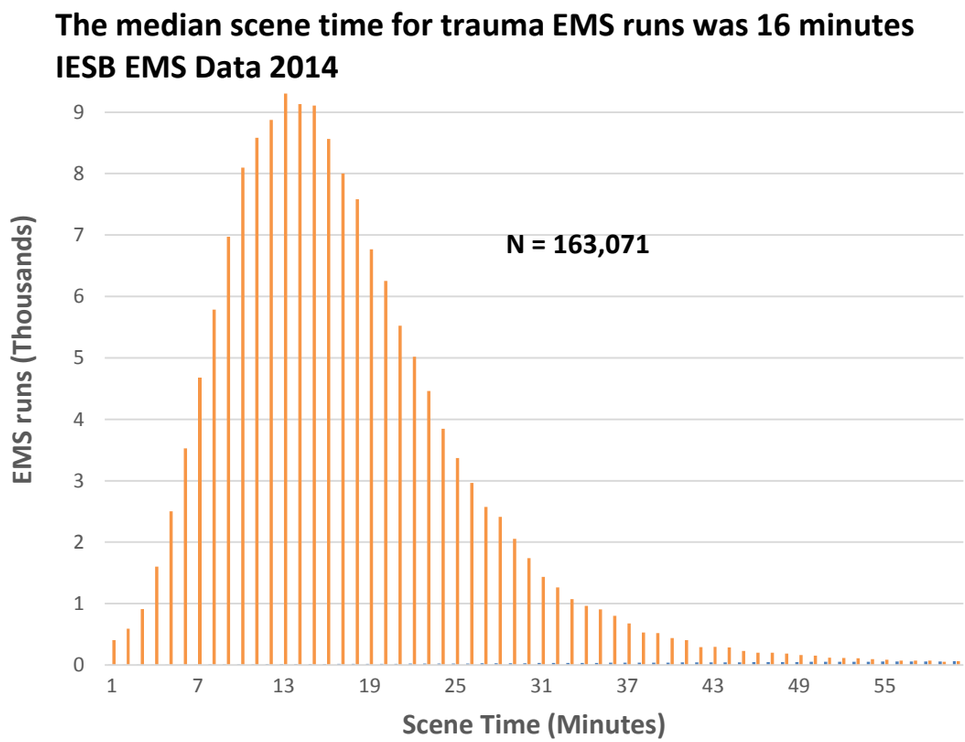
Response Time

The response time is an interval from the EMS unit being notified to the arrival of the EMS unit at the scene. Median is a value of measurement at which 50% of all events occur. It is a point where half of the number of measurements fall below and half above. The median response time for trauma EMS runs was 6 minutes in Texas.



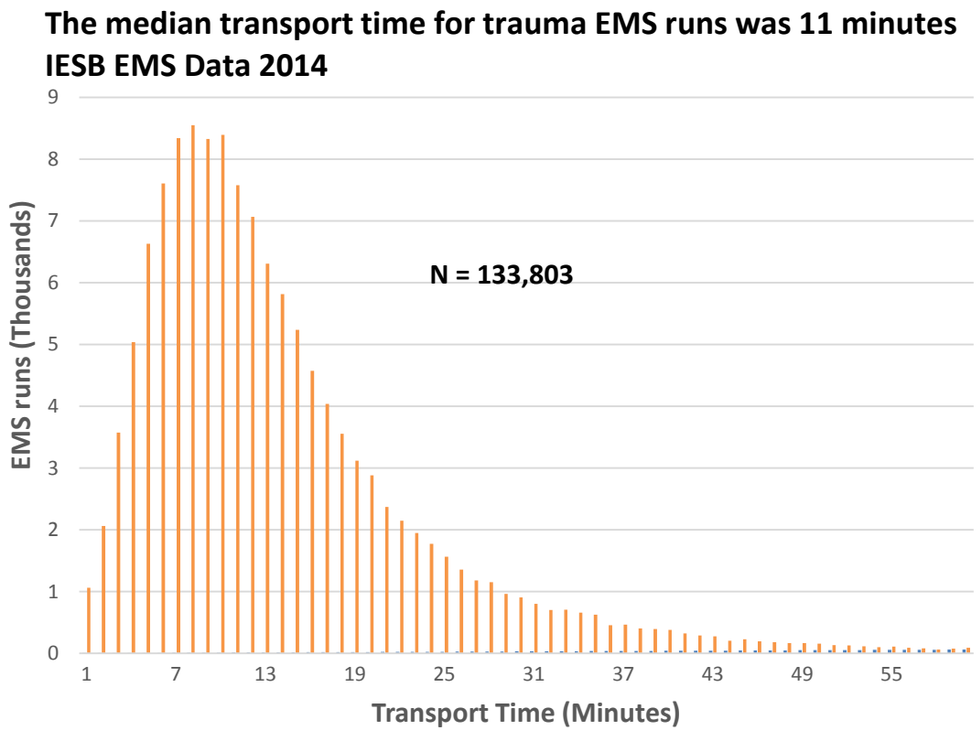
Scene Time

The scene time is an interval from the EMS unit's arrival at the scene to the EMS unit's departure from the scene. The median scene time for trauma EMS runs was 16 minutes.



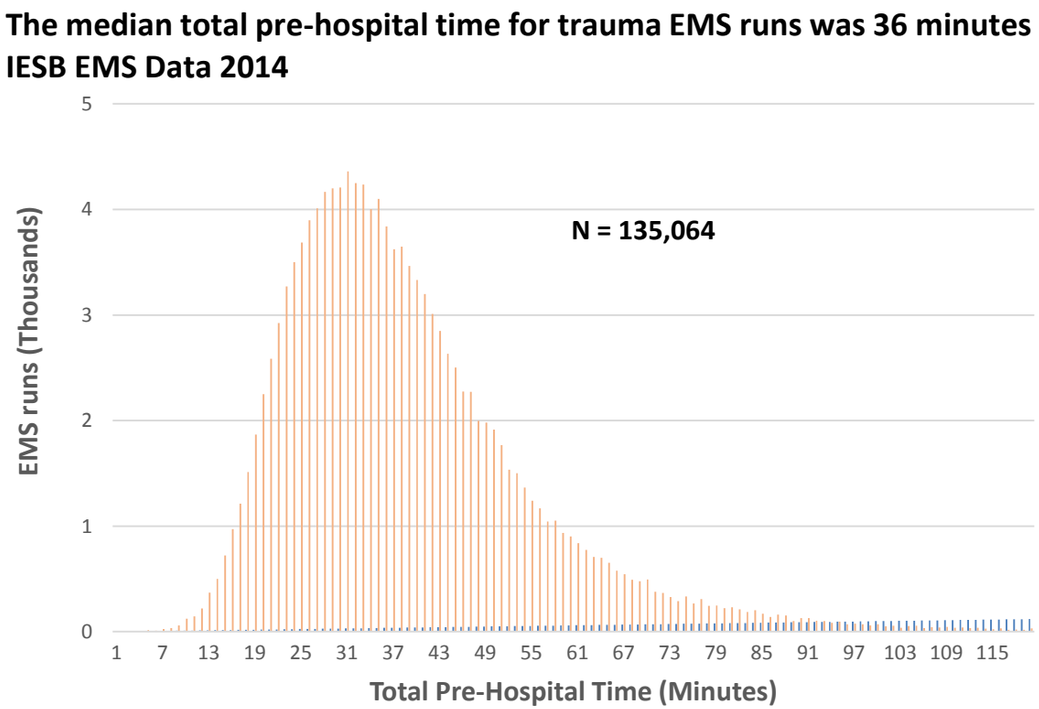
Transport Time

The transport time is an interval from the EMS unit's departure from the scene to the patient's arrival at the destination. The median transport time for trauma EMS runs was 11 minutes.



Total Pre-Hospital Time

The total pre-hospital time is an interval from the EMS unit being notified to the patient's arrival at the destination. The median total pre-hospital time for trauma EMS runs was 36 minutes.



Conclusion

In 2014, there were 311,472 trauma EMS runs, 12.3% of 2,540,055 total EMS runs in Texas. The trauma runs occurred throughout Texas at a rate of 1,681 runs per 100,000 population. Nearly all (96%) of the trauma EMS runs were made by ground ambulance. Trauma runs had a median response time of 6 minutes, a median transport time of 11 minutes, and a median total pre-hospital time of 36 minutes.

This report describes the burden of injury on the EMS system including, cause and intent of the injury, location of injury, and patterns of injury. Information about groups at highest risk for injuries (e.g., motor vehicle-traffic-related injuries among young adults and fall-related injuries among older adults) may help in prevention planning activities.

Findings on EMS trauma run times (response time, transport time and total pre-hospital time) help assess EMS system efficiency. For instance, they provide information on how quickly EMS services are available to the injured individual at the scene and how quickly they are transported to an appropriate treatment center.

This report is an initial look at EMS services for trauma injuries in Texas. Findings may be utilized by EMS providers, Regional Advisory Councils (RACs) and other interested stakeholders to help future planning and improvement efforts related to EMS services in Texas.

Ambulance in Motion by Benjamin Ellis (2009) https://www.flickr.com/photos/jamin2/3555151084/
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Technical Notes

Databases:

The database used in this report is the 2014 EMS registry data for trauma runs only from the EMS & Trauma Registries (ETR). ETR is a statewide passive surveillance system that collects reportable events data from EMS providers, hospitals, physicians, justices of the peace, medical examiners, and rehabilitation facilities.

Data Analysis:

Descriptive analysis of 2014 EMS data was performed using Statistical Analysis Software (SAS) 9.4. The total number of run records differ for different variables depending on missing data, which may affect proportion calculations.

Law

The IESB follows Texas Administrative Code 25, Part 1, Chapter 103: Injury Prevention and Control. The rule implements Health and Safety Code, Title 2, Subtitle D, Chapter 92, Subchapter- A, for the prevention and control of injuries in Texas by establishing and maintaining a trauma reporting and analysis system, investigating injuries, and providing injury-related information for prevention.

The rule requires EMS providers to report all EMS runs in Texas to the Texas EMS & Trauma Registries.